UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 29, 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Reinstatement of Aerial Application

TO: See Below

FROM: Ingrid M. Sunzenauer, RM Ingrid
Special Review Branch (TS-767C)

Du Pont has submitted some additional information concerning aerial application and has requested that EPA reinstate aerial application on their label. My recommendation is that we grant this request. I have spoken with several team members, who also agree. As opposed to setting up a team meeting to discuss the matter, I decided just to send you a copy of du Pont's request and EEB's review. If anyone disagrees with reinstating aerial application, I will schedule a team meeting. Please let me know your position as soon as you can. Thanks.

Attachment

Team Members

K. Barbehenn
J. Garbus
G. Keitt
C. Lunchick
R. McLaughlin
J. Rowe
A. Schlosser
D. Szuhay
R. Torla
R. Taylor/V. Walters
G. Valaoras

AG-3C3- REV 11-84

DU PONT

ESTABLISHED 1802

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WALKER'S MILL, BARLEY MILL PLAZA
WILMINGTON, DELAWARE 19898

AGRICULTURAL CHEMICALS DEPARTMENT

March 10, 1986

Mr. Robert J. Taylor
Product Manager (25)
Herbicides/Fungicides Branch
Registration Division (TS-767C)
Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

SUBJECT: Reinstatement of Aerial Use with Submission of Data
Du Pont Lorox® Herbicide (EPA Reg. No. 352-270)
Du Pont Lorox® L Herbicide (EPA Reg. No. 352-391)
Du Pont Lorox® DF Herbicide (EPA Reg. No. 352-394)

Dear Mr. Taylor:

Attached are 5 copies of package labels and "Directions for Use" for Lorox®, Lorox® L, and Lorox® DF™, marked respectively AG-1152 D-8036 and AG-898 8016/8036; AG-1150 D-8036 and AG-790 8016/8036; AG-1151 D-8036 and AG-901 8016/8036.

We propose that aerial use be reinstated and that human flaggers be prohibited unless in totally enclosed vehicles. I had discussed this proposal with Curt Lunchick of the Exposure Assessment Branch and Ingrid Sunzenauer of the Special Review in December. They recommended submission of scientific data and a rationale to support aerial use.

We request that you review the attached rationale that supports our hypothesis that there should be no difference in exposure between applicators doing aerial and ground application.

We are also providing additional testimony for the need for aerial use of Lorox® for minor crops like carrots and celery. During periods of inclement weather, the grower needs to rely upon aerial use to get into the field to spray soybeans, corn, or tomatoes.

We appreciate your prompt review of the labels.

Sincerely,

Marie M. Hodge

Marie M. Hodge
Registration and
Regulatory Affairs

MMH:kmm
31086/2/3

cc: Ingrid Sunzenauer - EPA Special Review

1.0 INTRODUCTION

E.I. DuPont De Nemours has submitted a request to amend linuron labels to include aerial application. The use of human flaggers would be prohibited unless the flagger was in a totally enclosed vehicle. DuPont contends that aerial application is important for carrots, celery, and for emergency use in wet weather when ground equipment is impractical.

The registrant has submitted a report by Orius Associates, Inc. entitled "Comparison of Mixer/Loader and Applicator Exposure to Pesticides Applied by Aircraft or Ground Boom Equipment". The report essentially reviewed published ground boom and aerial application exposure studies and concluded that no difference exist in the rate of exposure of workers using ground boom or aerial equipment.

2.0 EXPOSURE ASSESSMENT BRANCH ANALYSIS

EAB has evaluated exposure studies available in the published literature. The purpose of the evaluation was to establish a generic surrogate data base for the application of pesticides. These studies will be discussed in the Linuron Postion Document 2/3. Mixer/loader exposure was evaluated for mixer/loaders wearing protective gloves and using either open pour or closed loading systems. The evaluation of 19 replicates estimated mixer/loader exposure as 0.95 mg/lb a.i. handled for open pour loading. When closed loading systems were used the exposure was 0.023 mg/lb a.i., based on 20 replicates. Based on each pound of linuron handled, a mixer/loader would be expected to receive the same exposure whether he was loading into a tractor boom spray tank or an aircraft spray tank.

An aerial mixer/loader will be expected to handle more active ingredient per day than a ground boom mixer/loader because the aircraft can apply more pesticide daily than a tractor. It is probable that a given mixer/loader in an aerial operation will receive greater exposures due to handling larger quantities of linuron; however, commercial aerial operations that use closed loading systems would reduce or eliminate this difference compared to open pour mixer/loaders.

Dermal exposure to pilots and ground boom tractor applicators was evaluated. A total of six studies containing 92 replicates showed that ground boom applicator dermal exposure ranged from 0.33 mg/hr to 146 mg/hr with a geometric mean of 2.6 mg/hr. Pilot exposure, based on an evaluation of six studies with 29 replicates, was estimated to be 0.67 mg/hr with a range of 0.03 to 1.0 mg/hr. The ground and aerial exposure estimates are based on an application rate of 1.0 lb a.i./acre.

A comparison of pilot and ground boom applicator exposure estimates indicate that pilots receive an average of 25% less dermal exposure per hour. This difference is even greater when the quantity of active ingredient handled is accounted for. Based on usage data provided by BUD for preemergent herbicides, a ground applicator treats 110 acres and a pilot treats 480 acres during a work day involving 5 to 6 hours of actual spray time. Therefore, with similar application rates, a pilot receives one fourth the exposure while applying four times the active ingredient or 1/16 the exposure of a ground applicator applying the same quantity of active ingredient.

3.0 CONCLUSIONS

Ground boom mixer/loaders and aerial mixer/loaders are expected to receive identical exposure to linuron based on each pound of active ingredient handled.

The annual exposure to aerial mixer/loaders would be expected to be greater than the annual exposure to ground boom mixer/loaders because aerial mixer/loaders could be expected to handle larger quantities of linuron annually.

Pilots receive less exposure to linuron than ground boom applicators. EAB estimates that per pound a.i. applied the pilot's exposure is less than a tenth of the ground boom applicator's exposure.

4.0 RECOMMENDATION

Prior to the removal of aerial application from linuron labels by DuPont, aerial application was a small percentage of linuron application. Aerial application was primarily confined to carrots, celery, and emergency backup to ground application when rains saturated the ground.

Assuming that acreage previously treated by air is now treated by ground, annual exposure to mixer/loaders should have remained constant and applicator exposure is estimated to have increased. Reinstatement of aerial applicator is predicted to reduce applicator exposure to acreage aerially treated with linuron.

EAB recommends that aerial application be reinstated on linuron labels in order to reduce applicator exposure. It is also recommended that the label recommend the use of closed loading systems for both commercial ground and aerial operators because they handle larger quantities of linuron on an annual

basis than do private farmers. DuPont's recommendation that the statement "Human flaggers prohibited unless in totally enclosed vehicles" must be required on linuron labels.

Curt Lunchick

Curt Lunchick
Special Review Section
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

13544

R117086

Chemical: Linuron

PC Code:
035506
HED File Code: 12100 Other Exposure Documents
Memo Date: 5/29/1986
File ID:
Accession #: 412-06-0008

HED Records Reference Center
2/2/2006